

Service Hints

Plasma Television

<PDP 2011 Model>

TH-P65/50VT30H

TH-P50/46/42ST30H

TH-P50/46/42U30H



TH-P50VT30H

Troubleshooting Guide

- Ver 1.0-

This service hints is published for technicians and engineers for repair. And it gives you the information how to judge the defective board of PDP. In the future, we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1. 2011 PDP Line up & Feature Comparison

1. 2011 PDP Line up & Feature Comparison

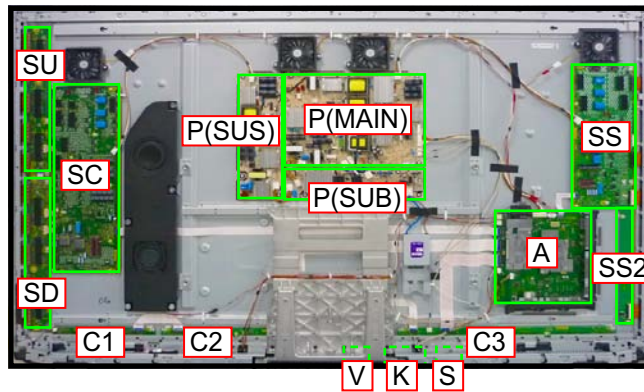
		VT30 Series	ST30 Series	U30 Series
				
Picture	Size	65/50	50/46/42	50/46/42
	Full HD 3D	Y	Y	—
	3D Active Shutter Eyewear	2 included	Not Included	—
	Contrast Ratio	5,000,000:1	5,000,000:1	2,000,000:1
	Shades of Gradation	6,144	6,144	6,144
	Moving Picture Resolution	1,080 lines	1,080 lines	900 lines
	THX Mode	Y	—	—
	ISFccc	Y	—	—
	3D Colour Management	Y	—	—
Sound	Speakers	Dual Speaker, Woofer	Full-range x 2 (L, R)	Full-range x 2 (L, R)
Networking	HDMI Input	4 (4 side)	4 (1 side, 3 rear)	3 (1 side, 2 rear)
	Support Feature	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)
	USB	3 (3side)	3 (3side)	2 (2 side)
	USB HDD Recording	Y	Y	—
	SD Card Recording	Y	Y	—
	VIERA Connect	Y	Y	Y
	Wireless LAN Adaptor	Y (included)	WiFi Ready	WiFi Ready
Others	DLNA	Y	Y	Y
	Swivel	Only 50	Y	—
	One-Sheet-of-Glass Design	Y	—	—

2. PCB Location & Function

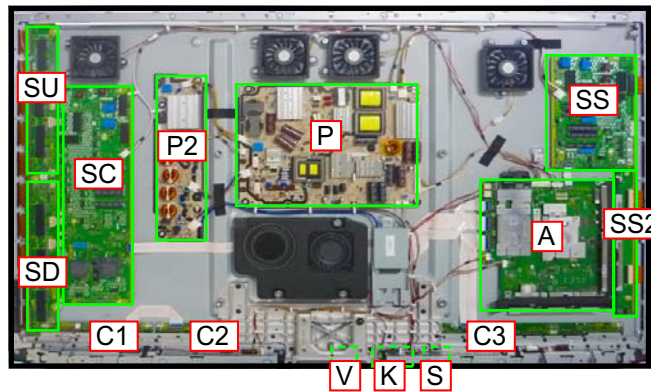
2. PCB Location & Function

VT30 Series

TH-P65VT30H



TH-P50VT30H



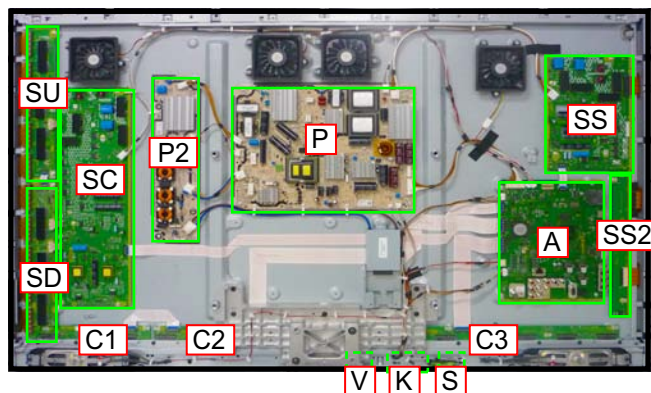
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P(MAIN)-Board should be exchanged for service.	N0AE6KM00008
	Power Supply Non serviceable. P(SUS)-Board should be exchanged for service.	N0AE6KM00004
	Power Supply Non serviceable. P(SUB)-Board should be exchanged for service.	N0AE6KM00005
A	Main AV input, processing	TZTNP01MKUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1MTUA
S	Power Switch	TXN/S1MTUA
V	3D Eyewear transmitter	TXN/V1MTUA
C1	Data Driver (Lower Right)	TXNC111UHK
C2	Data Driver (Lower Center)	TXNC211UHK
C3	Data Driver (Lower Left)	TXNC311UHK
SC	Scan Drive	TXNSC11UHK
SS	Sustain Drive	TXNSS11UHK
SS2	Sustain out (Lower)	TXNSS211UHK
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11UHK
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11UHK

Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE
P2	Power Supply	TXNP21PNUB50
—	—	—
A	Main AV input, processing	TZTNP01MLUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
S	Power Switch	TXN/S1MZUJ46
V	3D Eyewear transmitter	TXN/V1MZUJ46
C1	Data Driver (Lower Right)	TXNC11NBUJ50
C2	Data Driver (Lower Center)	TXNC211GGK50
C3	Data Driver (Lower Left)	TXNC311GGK50
SC	Scan Drive	TXNSC11GGKB
SS	Sustain Drive	TXNSS11GGK50
SS2	Sustain out (Lower)	TXNSS211GGK
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUA50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1NBUJ50

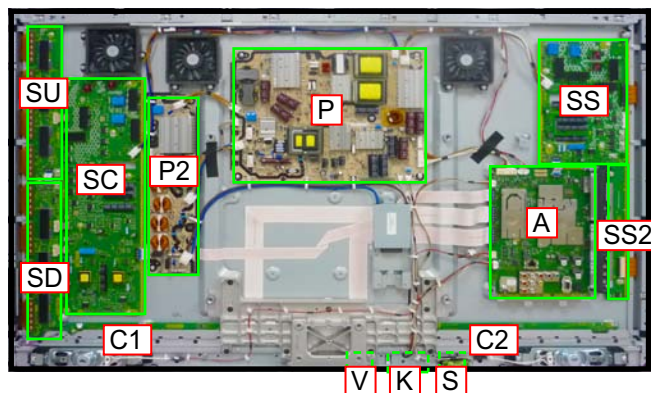
2. PCB Location & Function

ST30 Series

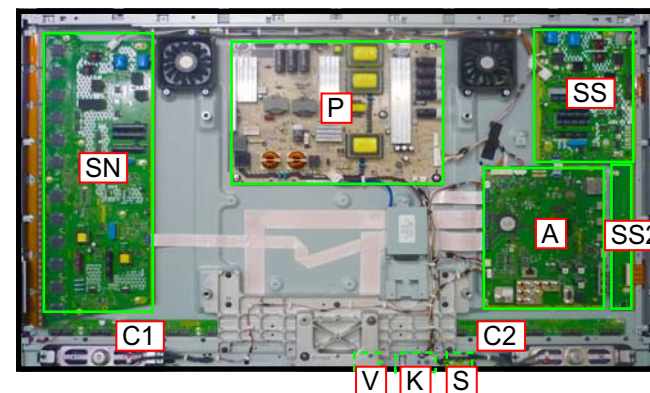
TH-P50ST30H



TH-P46ST30H



TH-P42ST30H



Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE
P2	Power Supply	TXNP21PNUB50
A	Main AV input, processing	TZTNP01MMUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NCUA42
S	Power Switch	TNPA5394
V	3D Eyewear transmitter	TNPA5396
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TXNC211GGK50
C3	Data Driver (Lower Left)	TXNC311GGK50
SC	Scan Drive	TXNSC11GGK50
SS	Sustain Drive	TXNSS11GGK50
SS2	Sustain out (Lower)	TXNSS211GGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUA50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5337
—	—	—

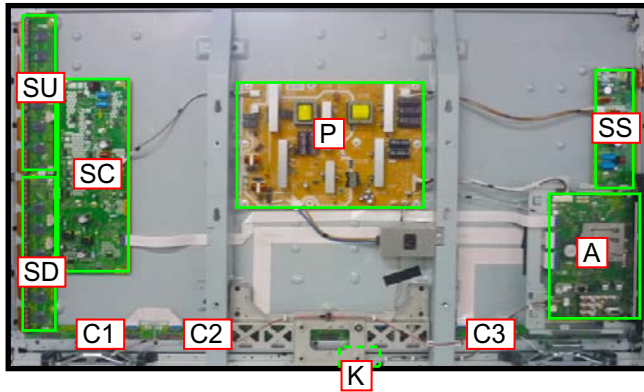
Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE46
P2	Power Supply	TXNP21QMUE46
A	Main AV input, processing	TZTNP01MNUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NCUA42
S	Power Switch	TXN/S1MZUJ46
V	3D Eyewear transmitter	TXN/V1MZUJ46
C1	Data Driver (Lower Right)	TXNC11NCUJ46
C2	Data Driver (Lower Left)	TXNC21QVUJ46
—	—	—
SC	Scan Drive	TXNSC1MVUZ46
SS	Sustain Drive	TXNSS1MVUZ46
SS2	Sustain out (Lower)	TXNSS21MVUZ46
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MVUA46
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1NCUJ46
—	—	—

Board Name	Function	Parts Number
P	Power Supply	TXN/P1QKUE42
—	—	—
A	Main AV input, processing	TZTNP01MPUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NCUA42
S	Power Switch	TNPA5394
V	3D Eyewear transmitter	TNPA5396
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211DHK42
—	—	—
SS	Sustain Drive	TXNSS11DHK42
SS2	Sustain out (Lower)	TXNSS211DHK
—	—	—
—	—	—
SN	Scan Drive	TXNSN11DHK42

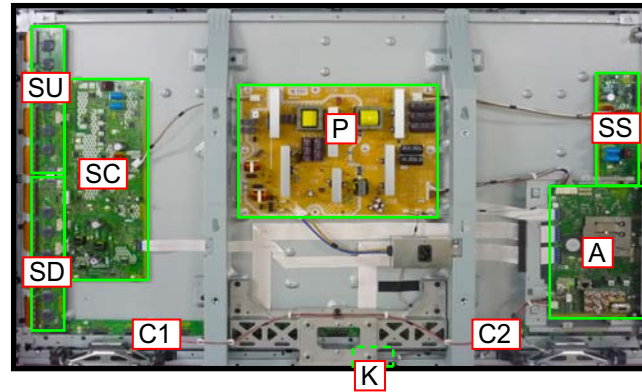
2. PCB Location & Function

U30 Series

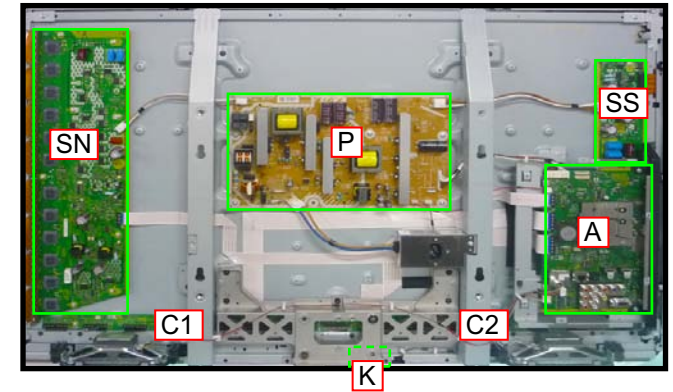
TH-P50U30H



TH-P46U30H



TH-P42U30H



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00009
A	Main AV input, processing	TZTNP01MQUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TNPA5319
C3	Data Driver (Lower Left)	TNPA5320
SC	Scan Drive	TXNSC11JGK50
SS	Sustain Drive	TXNSS11JGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11JGK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11JGK50
—	—	—

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00009
A	Main AV input, processing	TZTNP01MRUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5316
C2	Data Driver (Lower Left)	TNPA5317
—	—	—
SC	Scan Drive	TXNSC1MUUM46
SS	Sustain Drive	TXNSS1MUUM46
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUM46
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1MUUM46
—	—	—

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00008
A	Main AV input, processing	TZTNP01MSUH
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211FHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11FHK42
—	—	—
—	—	—
SN	Scan Drive	TXNSN11FHK42

3. PCB List

3. PCB List

	VT30 series		ST30 series			U30 series		
Board	TH-P65VT30H	TH-P50VT30H	TH-P50ST30H	TH-P46ST30H	TH-P42ST30H	TH-P50U30H	TH-P46U30H	TH-P42U30H
P	N0AE6KM00008 (MAIN)	TXNP11QJUE	TXNP11QJUE	TXNP11QJUE46	TXN/P1QKUE42	N0AE5JK00009	N0AE5JK00009	N0AE5JK00008
	N0AE6KM00004 (SUS)	TXNP21PNUB50 (P2)	TXNP21PNUB50 (P2)	TXNP21QMUE46 (P2)	----	----	----	----
	N0AE6KM00005 (SUB)	----	----	----	----	----	----	----
A	TZTNP01MKUH	TZTNP01MLUH	TZTNP01MMUH	TZTNP01MNUH	TZTNP01MPUH	TZTNP01MQUH	TZTNP01MRUH	TZTNP01MSUH
K	TXN/K1MTUA	TXN/K1NNUA42	TXN/K1NCUA42	TXN/K1NCUA42	TXN/K1NCUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42
S	TXN/S1MTUA	TXN/S1MZUJ46	TNPA5394	TXN/S1MZUJ46	TNPA5394	----	----	----
V	TXN/V1MTUA	TXN/V1MZUJ46	TNPA5396	TXN/V1MZUJ46	TNPA5396	----	----	----
C1	TXNC111UHK	TXNC11NBUJ50	TNPA5318	TXNC11NCUJ46	TNPA5314	TNPA5318	TNPA5316	TNPA5314
C2	TXNC211UHK	TXNC211GGK50	TXNC211GGK50	TXNC21QVUJ46	TXNC211DHK42	TNPA5319	TNPA5317	TXNC211FHK42
C3	TXNC311UHK	TXNC311GGK50	TXNC311GGK50	----	----	TNPA5320	----	----
SC	TXNSC11UHK	TXNSC11GGKB	TXNSC11GGK50	TXNSC1MVUZ46	----	TXNSC11JGK50	TXNSC1MUUM46	----
SS	TXNSS11UHK	TXNSS11GGK50	TXNSS11GGK50	TXNSS1MVUZ46	TXNSS11DHK42	TXNSS11JGK50	TXNSS1MUUM46	TXNSS11FHK42
SS2	TXNSS211UHK	TXNSS211GGK	TXNSS211GGK50	TXNSS21MVUZ46	TXNSS211DHK42	----	----	----
SU	TXNSU11UHK	TXNSU1MUUA50	TXNSU1MUUA50	TXNSU1MVUA46	----	TXNSU11JGK50	TXNSU1MUUM46	----
SD	TXNSD11UHK	TXNSD1NBUJ50	TNPA5337	TXNSD1NCUJ46	----	TXNSD11JGK50	TXNSD1MUUM46	----
SN	----	----	----	----	TXNSN11DHK42	----	----	TXNSN11FHK42

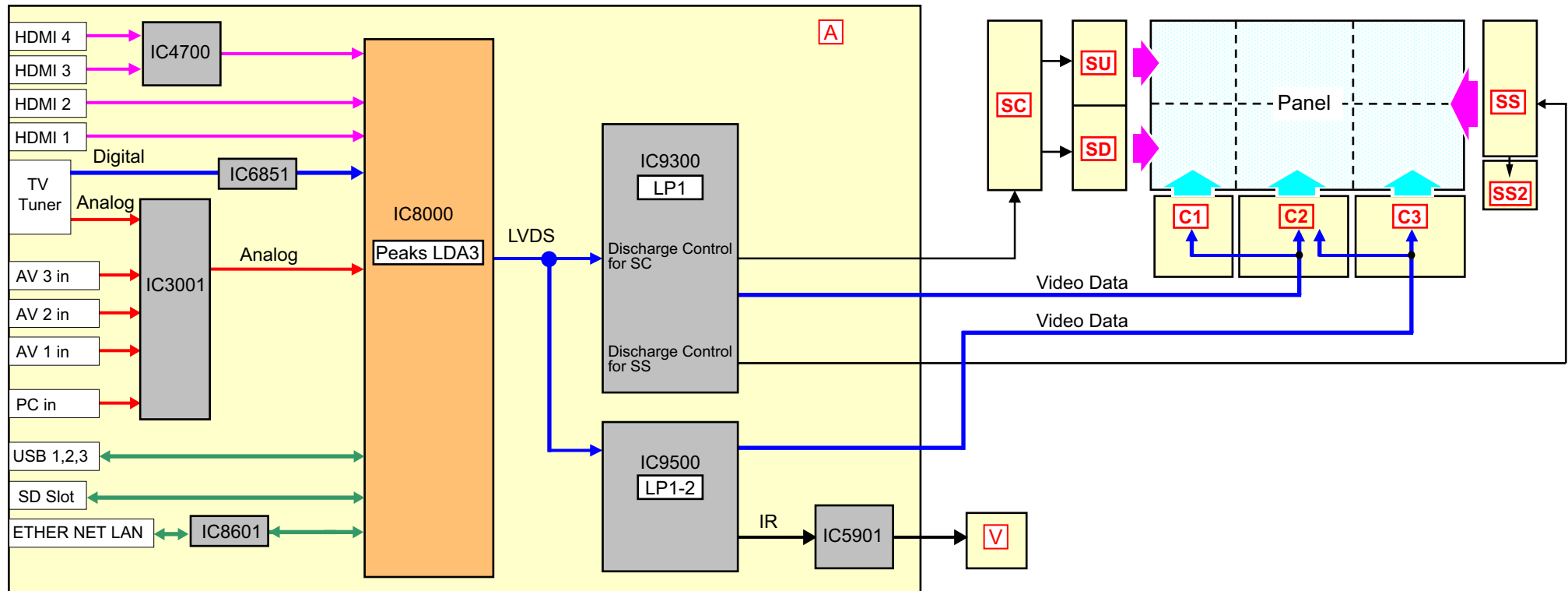
4. Block Diagram

Signal Processing Circuit (1) VT30 series

Signal Processing Circuit (1) VT30 series

<PCB Function>

[e.g.TH-P50VT30H]



IC3001
: **Video Switch**
(Audio Switch)

IC8601
: ETHER NET I/F

IC6851
: DTMB FE

IC4700
: HDMI SW
IC8000
: Peaks LDA3
(Digital Video Processor)

IC5901
: IR LED DRIVER

IC9300
: LP1
Sub Field Processor,
Discharge Control
Plasma AI

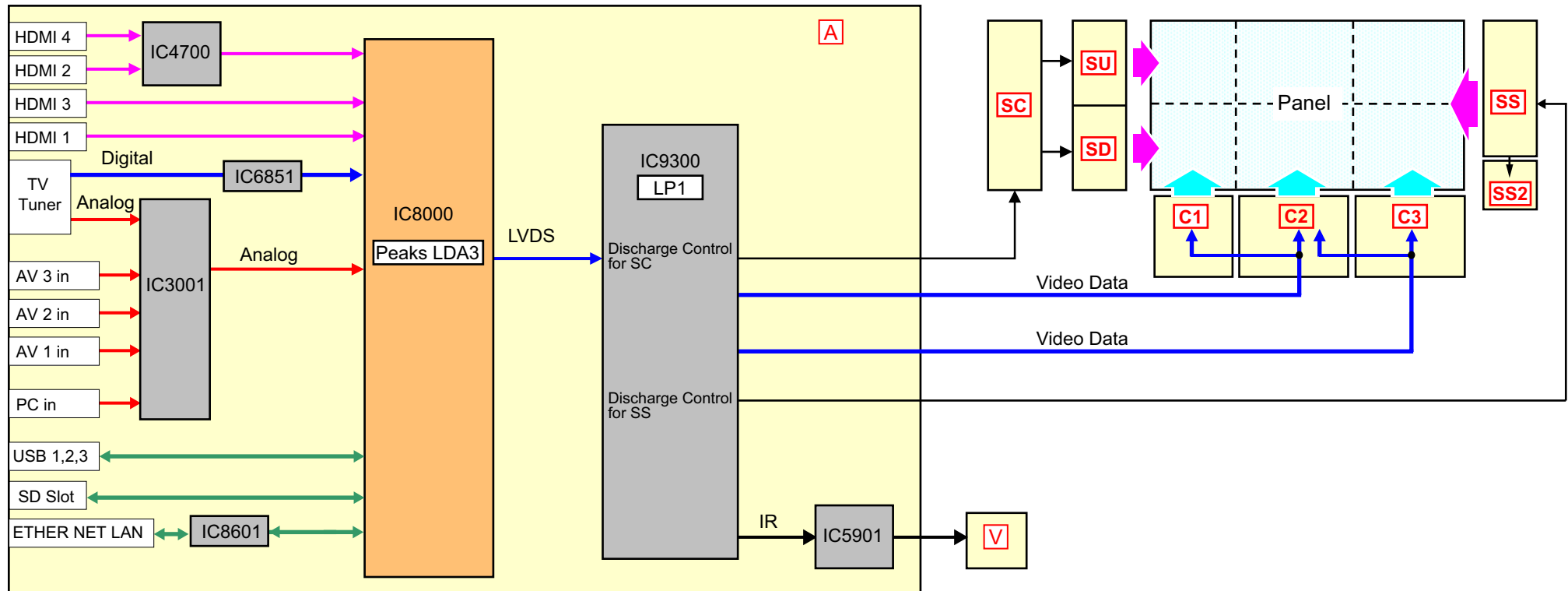
IC9500
: LP1-2
Sub Field Processor,
Plasma AI

4. Block Diagram

Signal Processing Circuit (2) ST30 series

<PCB Function>

[e.g. TH-P50ST30H]



IC3001
: Video Switch
(Audio Switch)

IC8601
: ETHER NET I/F

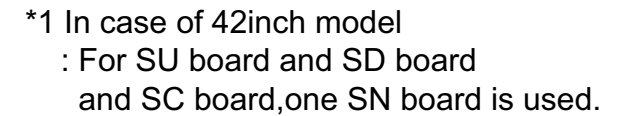
IC6851
: DTMB FE

IC4700
: HDMI SW
IC8000
: Peaks LDA3
(Digital Video Processor)
IC5901
: IR LED DRIVER

IC9300
: LP1
[Sub Field Processor,
Discharge Control
Plasma AI]

Signal Processing Circuit (3) U30 series

[e.g.TH-P50U30H]



IC9300
: PD5L
Sub Field Processor,
Discharge Control
Plasma AI

IC6851

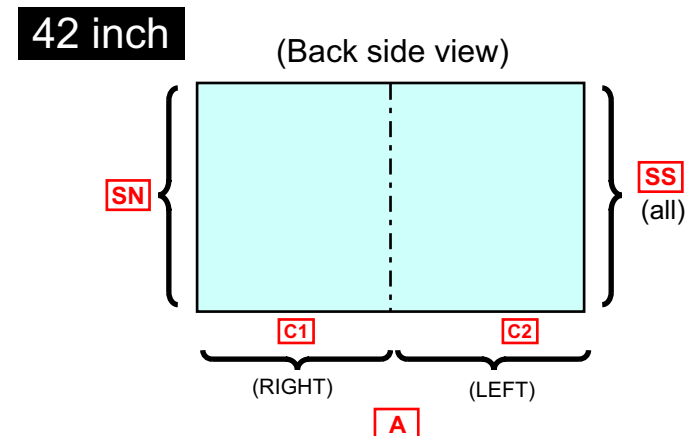
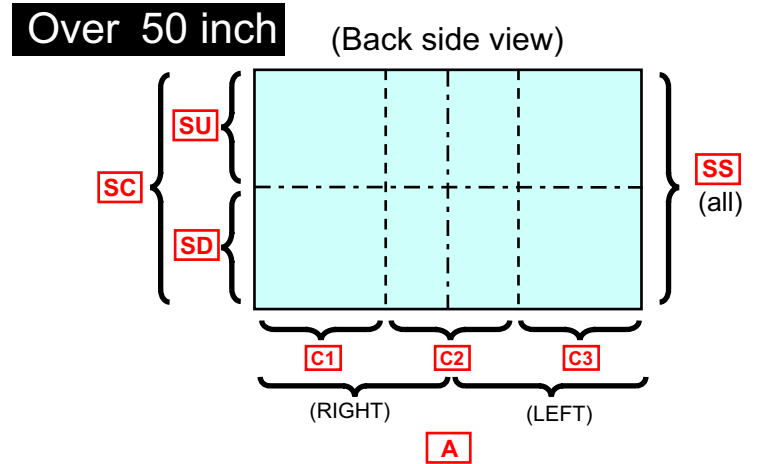
: DTMB FE

5. Troubleshooting

Relation of board and display area (1/2)

[In case of VT30/ST30 series]
(3D models)

<Relation of defective board and picture trouble area >



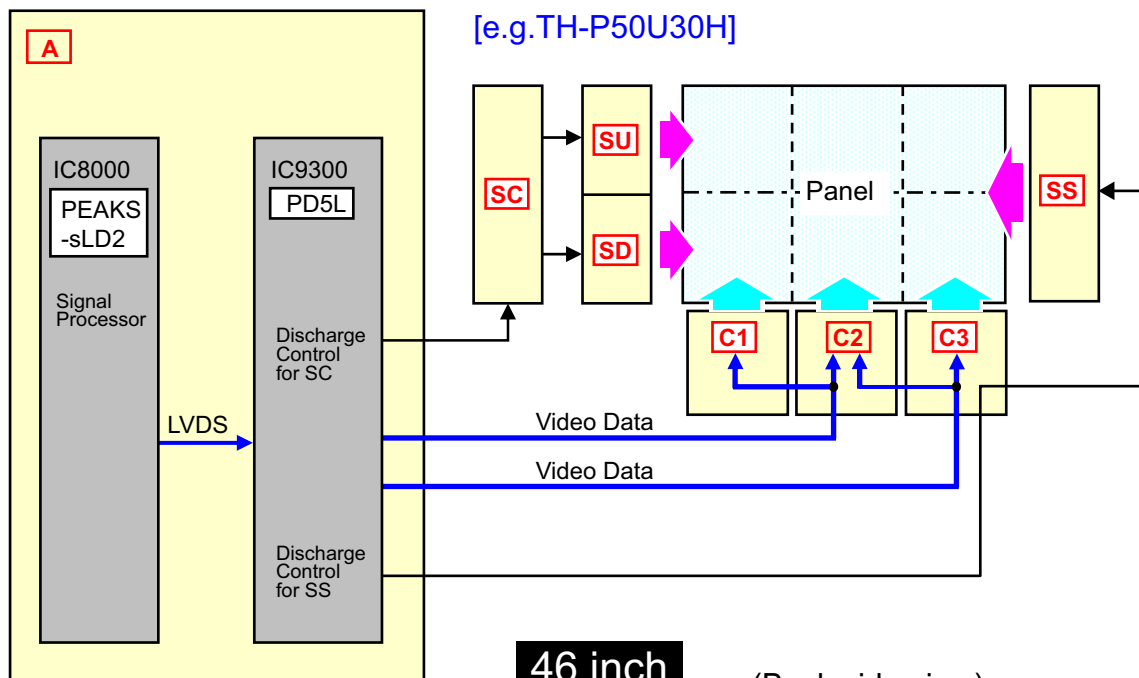
5.Troubleshooting for picture trouble

Relation of board and display area (2/2)

You know the possible defective board by picture trouble area.

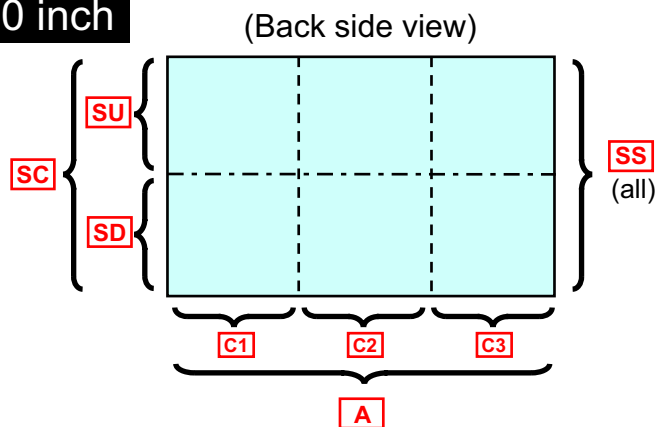
[In case of U30 series]
(2D Full HD models)

<Display device block diagram>

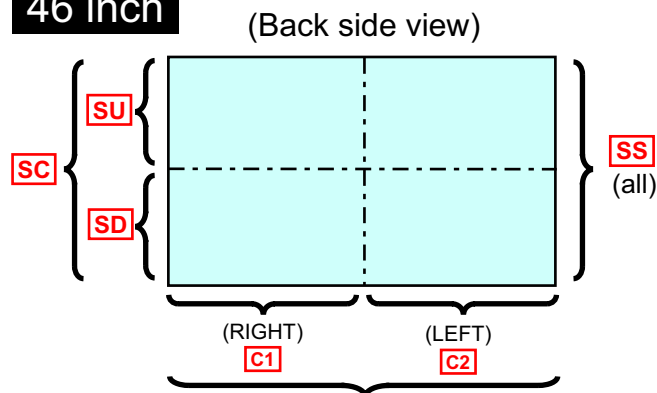


<Relation of defective board and picture trouble area >

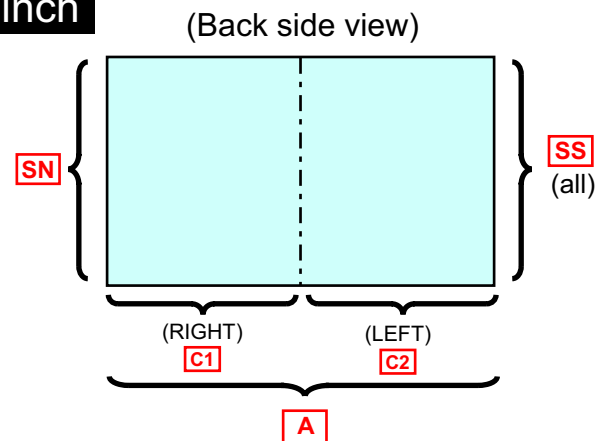
50 inch



46 inch



42 inch



A

5.Troubleshooting for picture trouble

Picture trouble [diagnosis of vertical line]

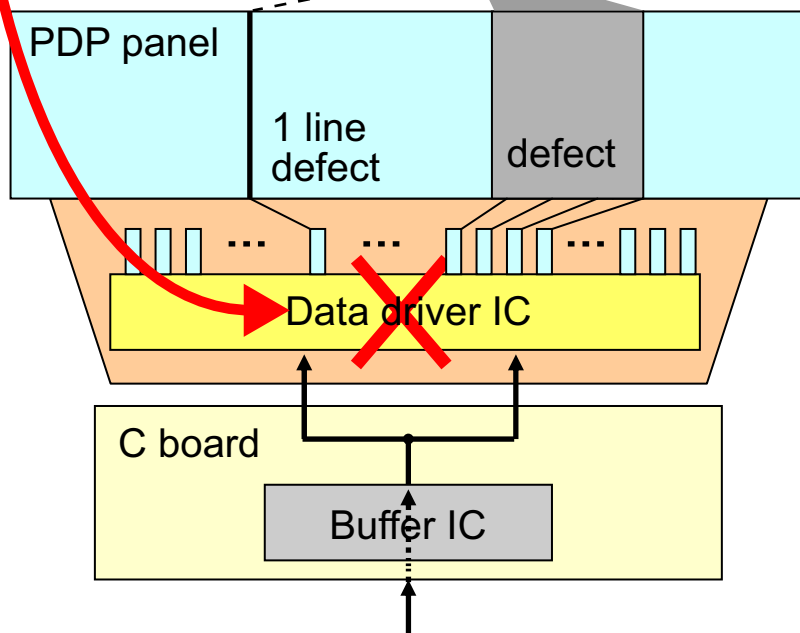
[In case of VT30 / ST30 / U30 series]

PDP panel defective (Data driver IC defective)

Width is narrower than FPC

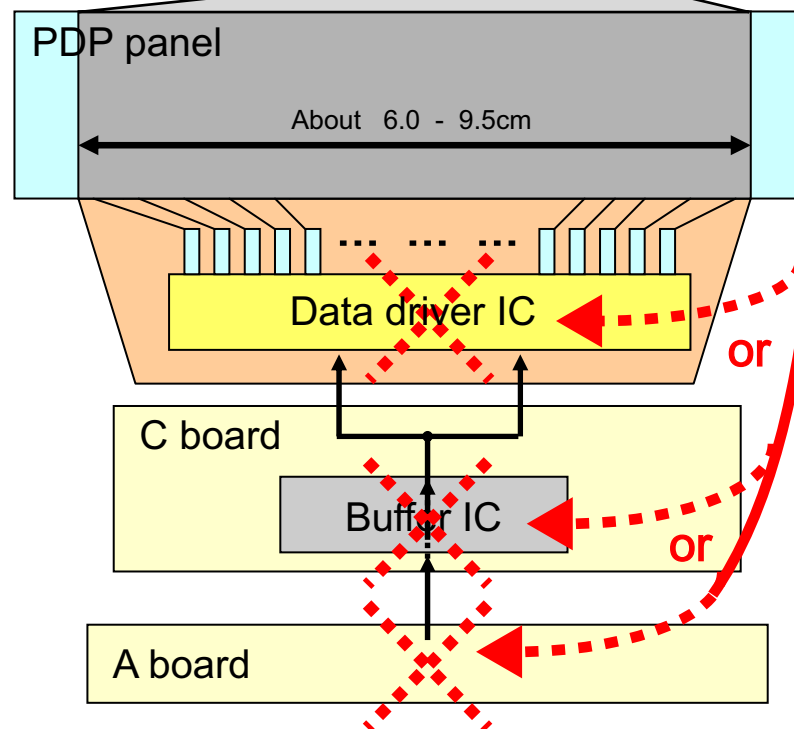


Data driver IC defect= PDP panel defect



Data driver IC or C or A board defective

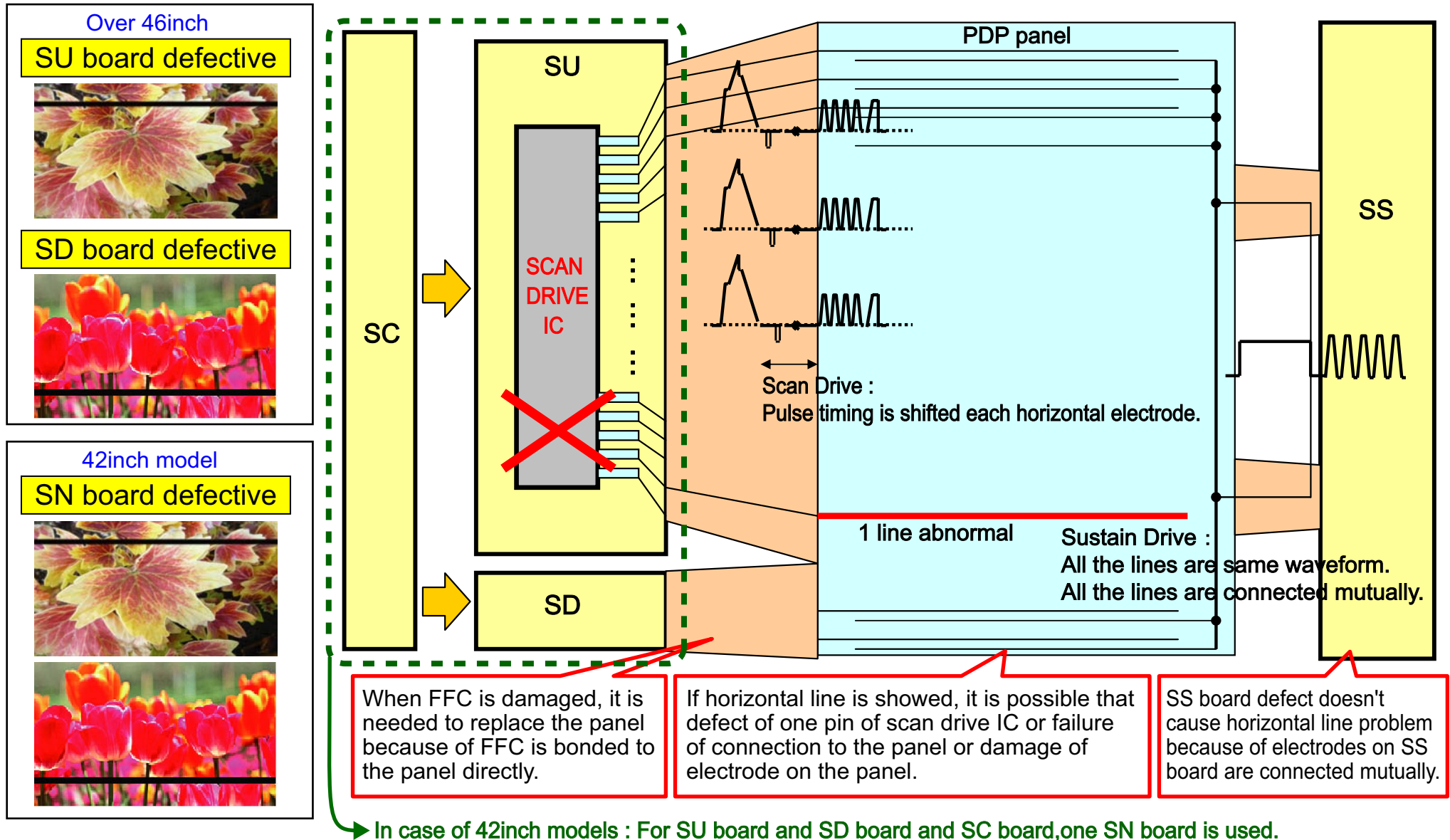
Width is same as FPC



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of horizontal line]

[In case of VT30 / ST30 / U30 series]



5.Troubleshooting for picture trouble

Picture trouble [Function of diagnosis]

< Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.

If the position of the line/lines changes when performing this function, the A board is possibly defective.

The rear cover does not have to be removed to do this.

To enter the Mirror Function.

From the Service Mode Menu, Press 1 or 2 to select "OPTION".

Press 3 or 4 to select "MIRROR".

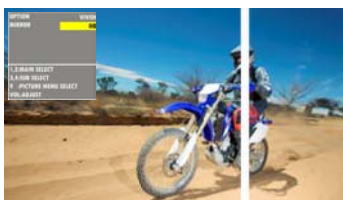
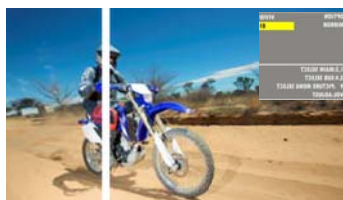
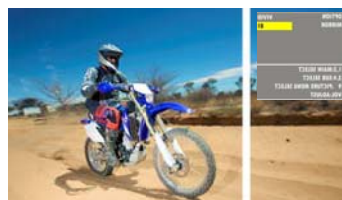
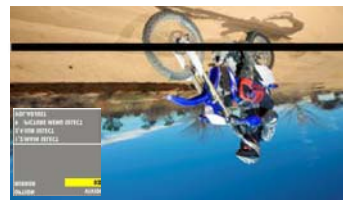
Press the VOLUME up or down button to change the Mirror's data.

Data = 00 Default data (Mirror function is off).

Data = 01 Picture is reversed left and right.

Data = 02 Picture is reversed up and down.

<How to diagnose by using "Mirror function">

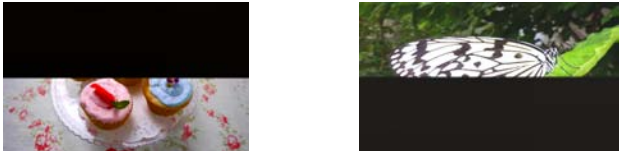
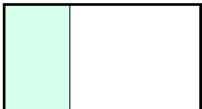
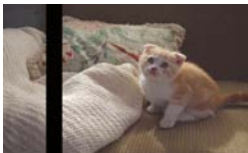
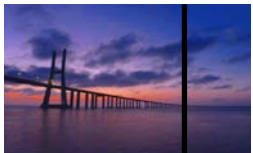
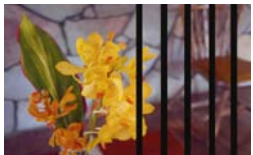
Vertical Line	Data : 00	Data : 01	
		the picture & line : reverse	only the picture : reverse
			
		Defective Block : A board	Defective Block : Panel or C board
Horizontal Line	Data : 00	Data : 02	
		the picture & line : reverse	only the picture : reverse
			
		Defective Block : A board	Defective Block : Panel or SD board *

* In case of 42inch models : For SU board and SD board and SC board,one SN board is used.

5.Troubleshooting for picture trouble

Summary of picture trouble

< Some part of screen : VT30 / ST30 / U30 series >

Symptom	Actual symptom	Defective board
Trouble at Upper or Lower half 		Over 46inch : SU / SD 42inch model : SN
Horizontal line (Upper or Lower side) 		Over 46inch : SU / SD 42inch model : SN or panel
Trouble at Left or Center or Right part (46/42inch model : Left or Right half) 	Over 50inch  46/42 inch model 	50inch : C1-C3 46/42inch : C1,C2
Vertical line (Width is same as FPC) 	 	C or A or PDP panel
Vertical line (Width is narrower than FPC) 	 	PDP panel
Regular bar 	 	A

5.Troubleshooting for picture trouble

Diagnosis by Test Pattern

<Model>

VT30, ST30, U30 series

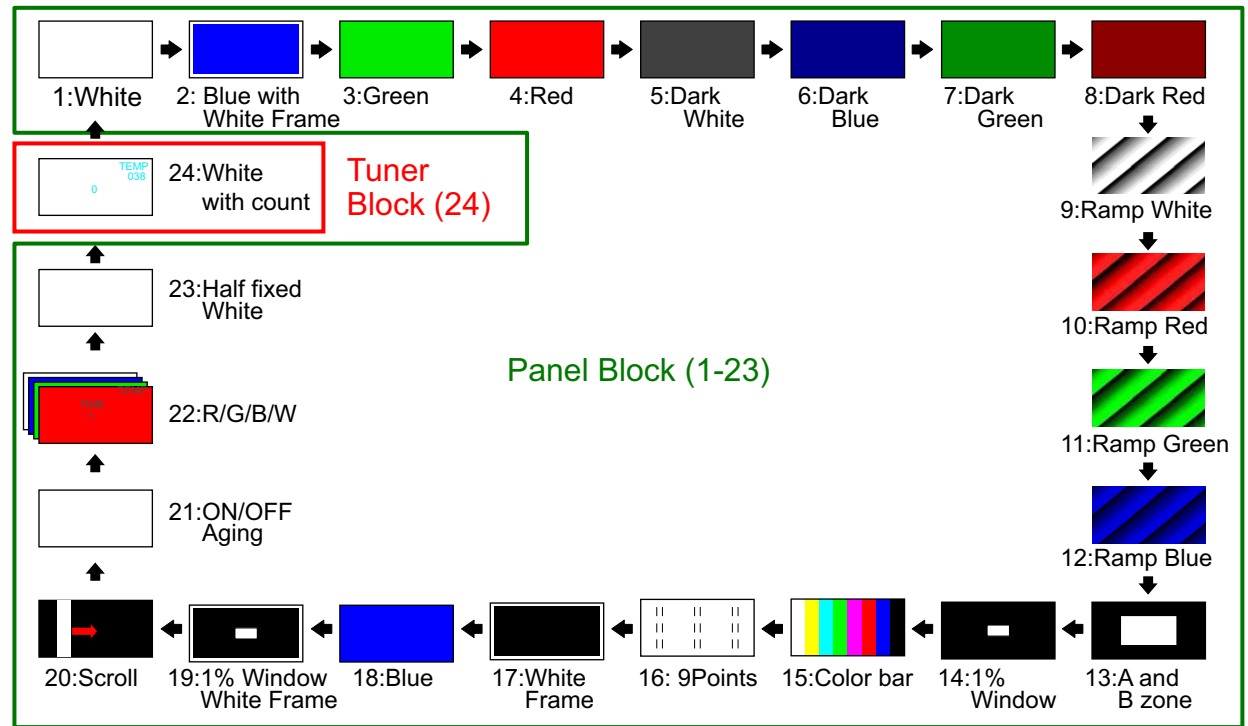
<Symptom>

Picture Noise, Full Vertical Line, Abnormal color

<How to enter the Test Pattern>

1. Press the "**VOLUME -**" on the TV set and push "**i**" button of remote controller 3 times at the same time.
2. After this procedure, you can enter "Service Mode" and select "**AGING**", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

<Test Pattern (Normal)>



<Diagnosis>

How to diagnose by using test pattern

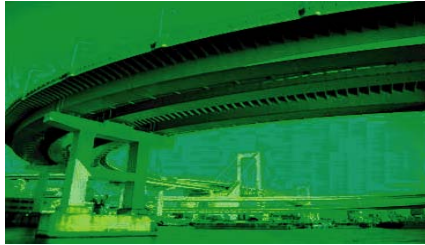
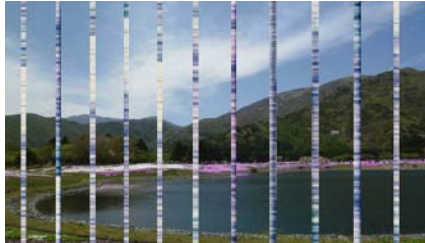
Abnormal picture
(Picture Noise, Full Vertical Line, Abnormal color)

Test pattern (1-23)	Defective Block (Board)
Abnormal	Panel Block (A Board or Panel)
Normal	Tuner Block (A Board)

No picture

Test pattern	Defective Block (Board)
No picture	Panel Block (A Board or Panel)
O.K	Tuner Block (A Board)

< All area of screen >

Symptom	Actual symptom	Defective board
Irregular Color	 	A board
All vertical line	 	A board
Abnormal electric discharge	  	in case of Over 46inch SC / SS board in case of 42inch SN / SS board

6. No Power Troubleshooting (When LED doesn't Blink)

[Model]

TH-P65/50VT30H, TH-P50/46/42ST30H

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green blinks [High-speed blinking] (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board
3	Power LED is green (No picture/No sound)	P15V:voltage down	SN/SC-board A-board

Troubleshooting Flowcharts
: refer to 26 page - 28 page

[Model]

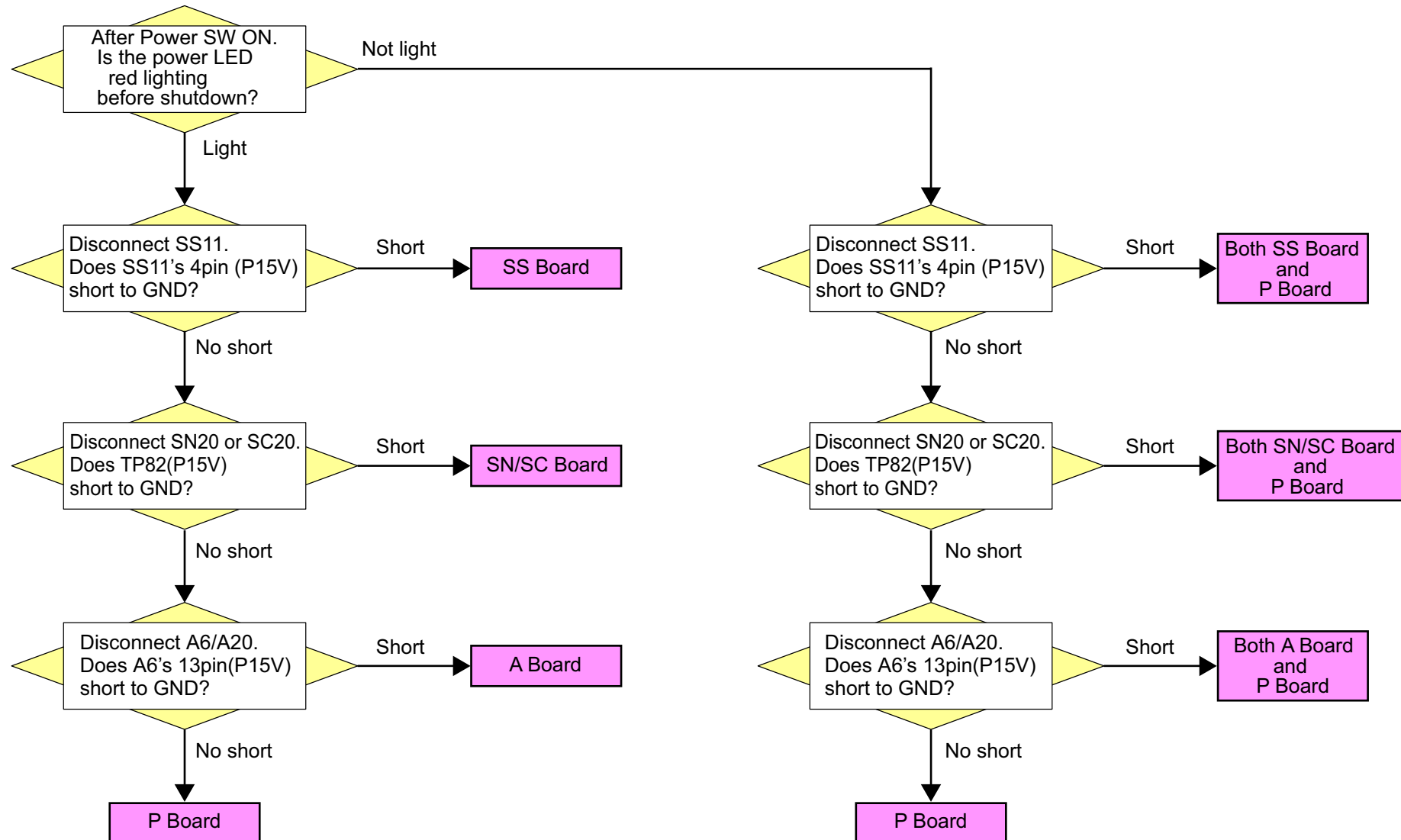
TH-P50/46/42U30H

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal V _{sus} :voltage down P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board

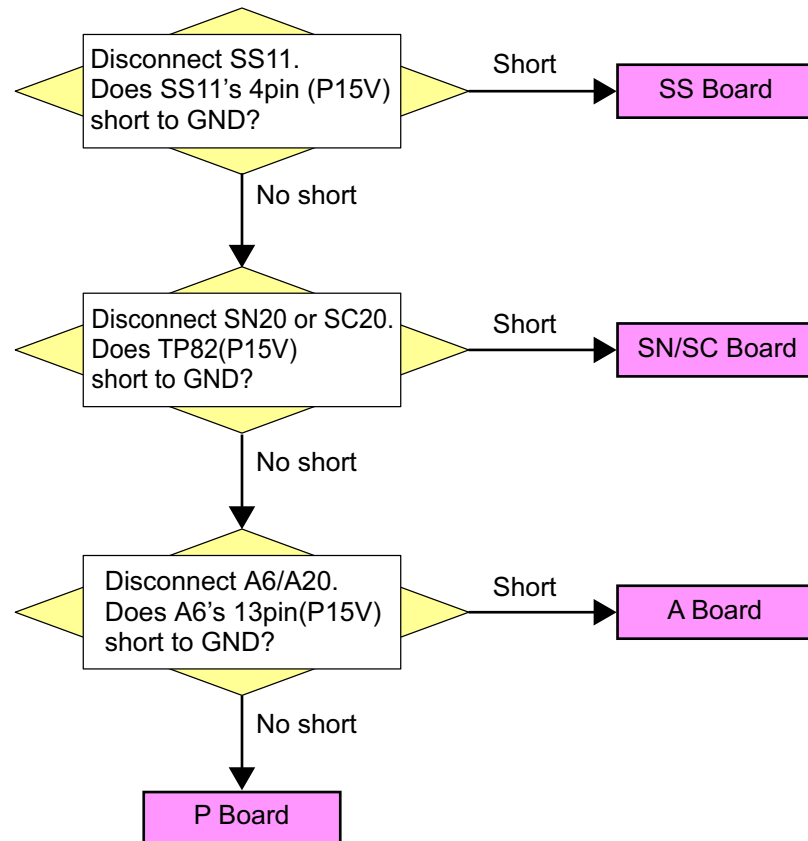
Troubleshooting Flowcharts
: refer to 29 page - 30 page

[Model] TH-P65/50VT30H, TH-P50/46/42ST30H

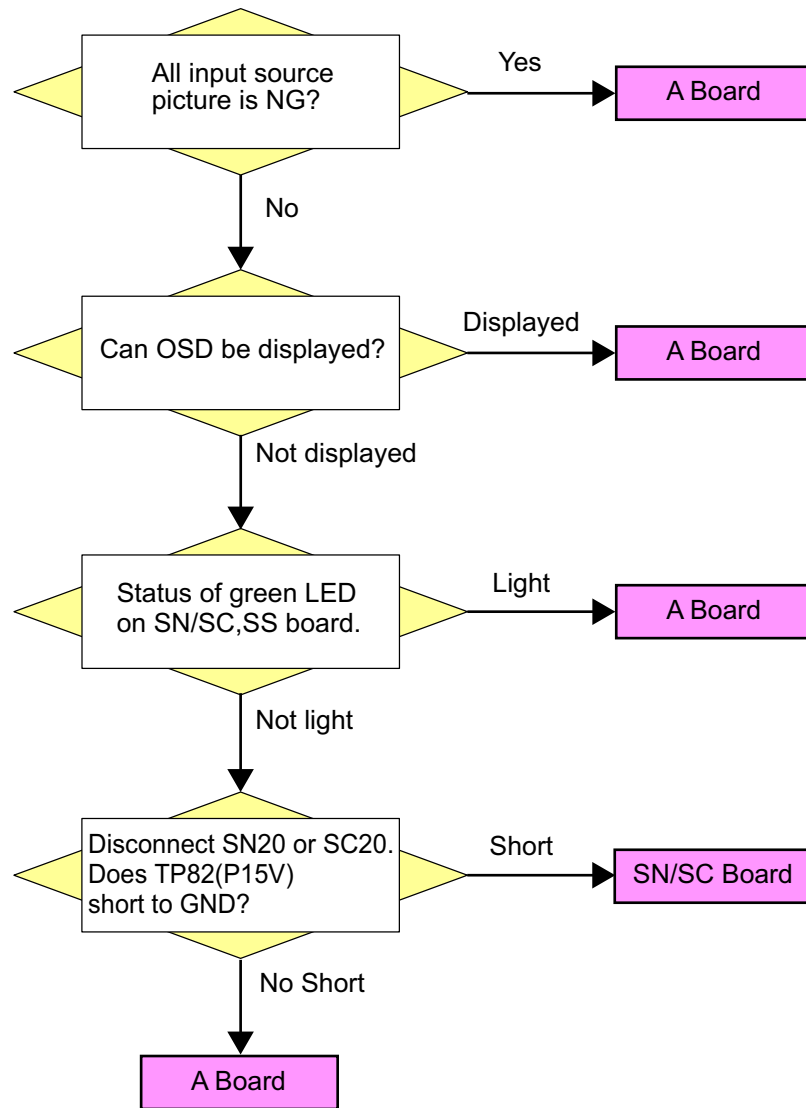
< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green blinking [High-speed blinks] : No Picture, No Sound >



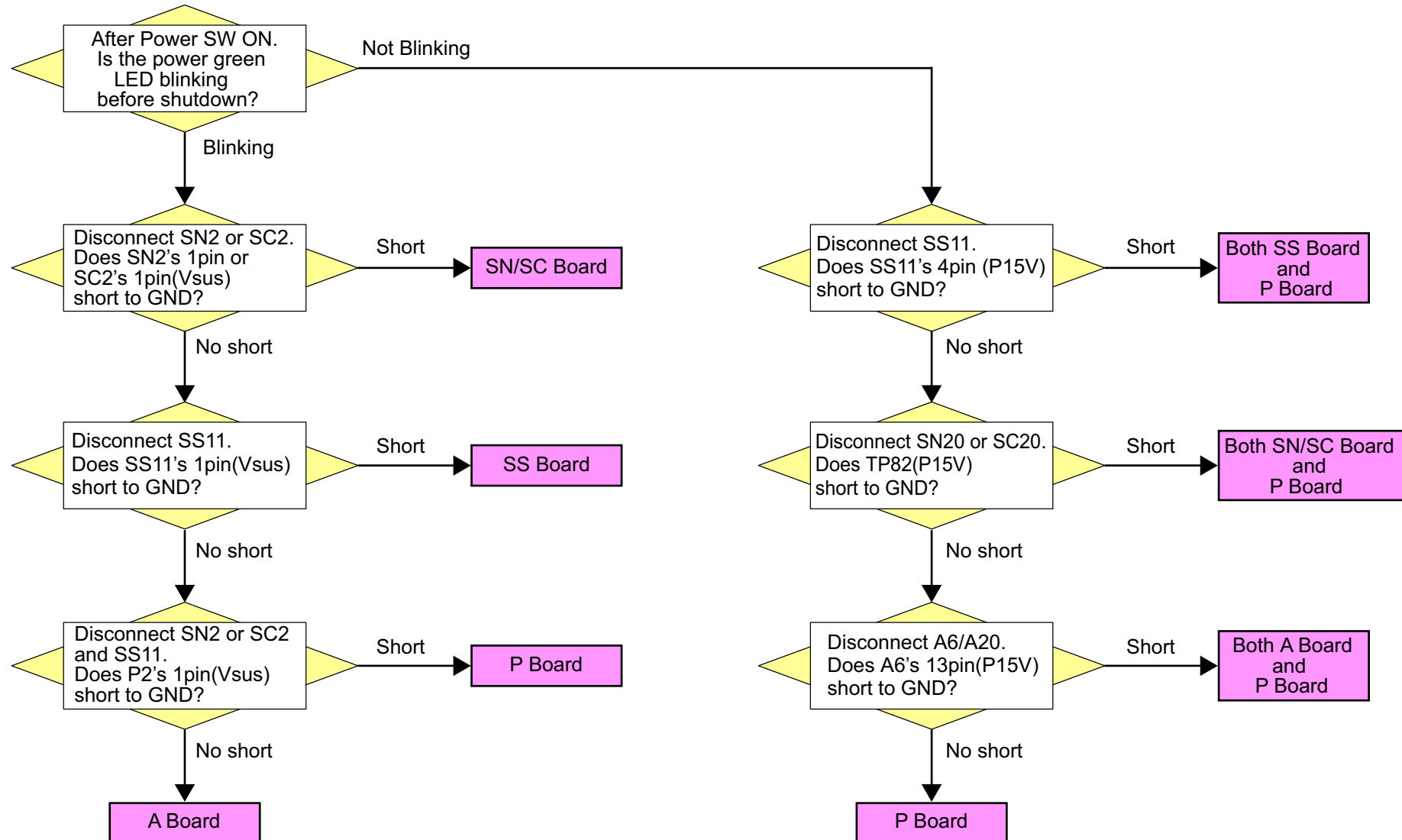
< 3. Power LED is green : No Picture, No Sound >



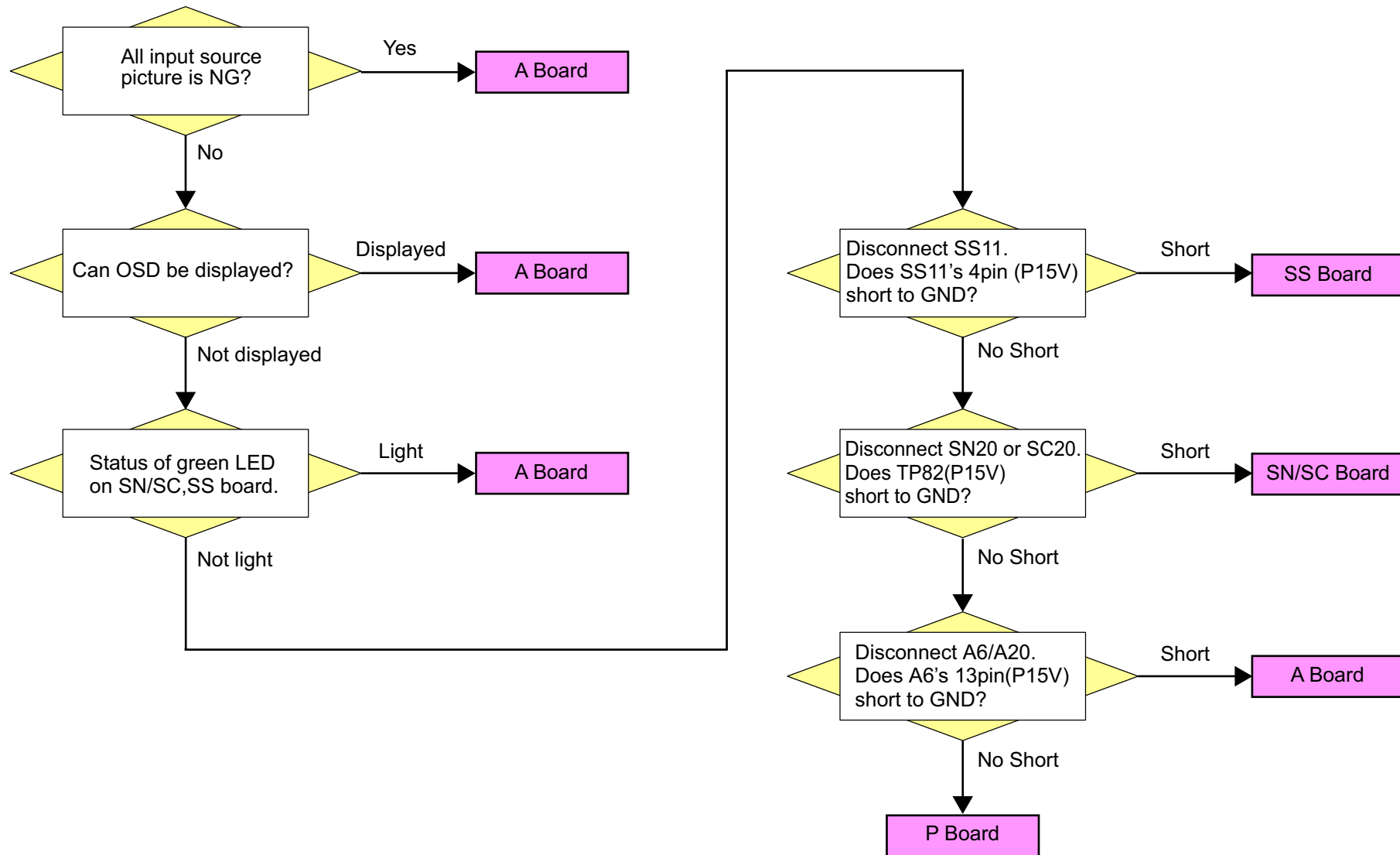
[Model]

TH-P50/46/42U30H

< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green : No Picture, No Sound >



7. Case Example of Picture Trouble

7. Case Example of Picture Trouble

[1] Model : 2011 model

[2] Symptom : Rainbow vertical bar

[3] Defective parts :

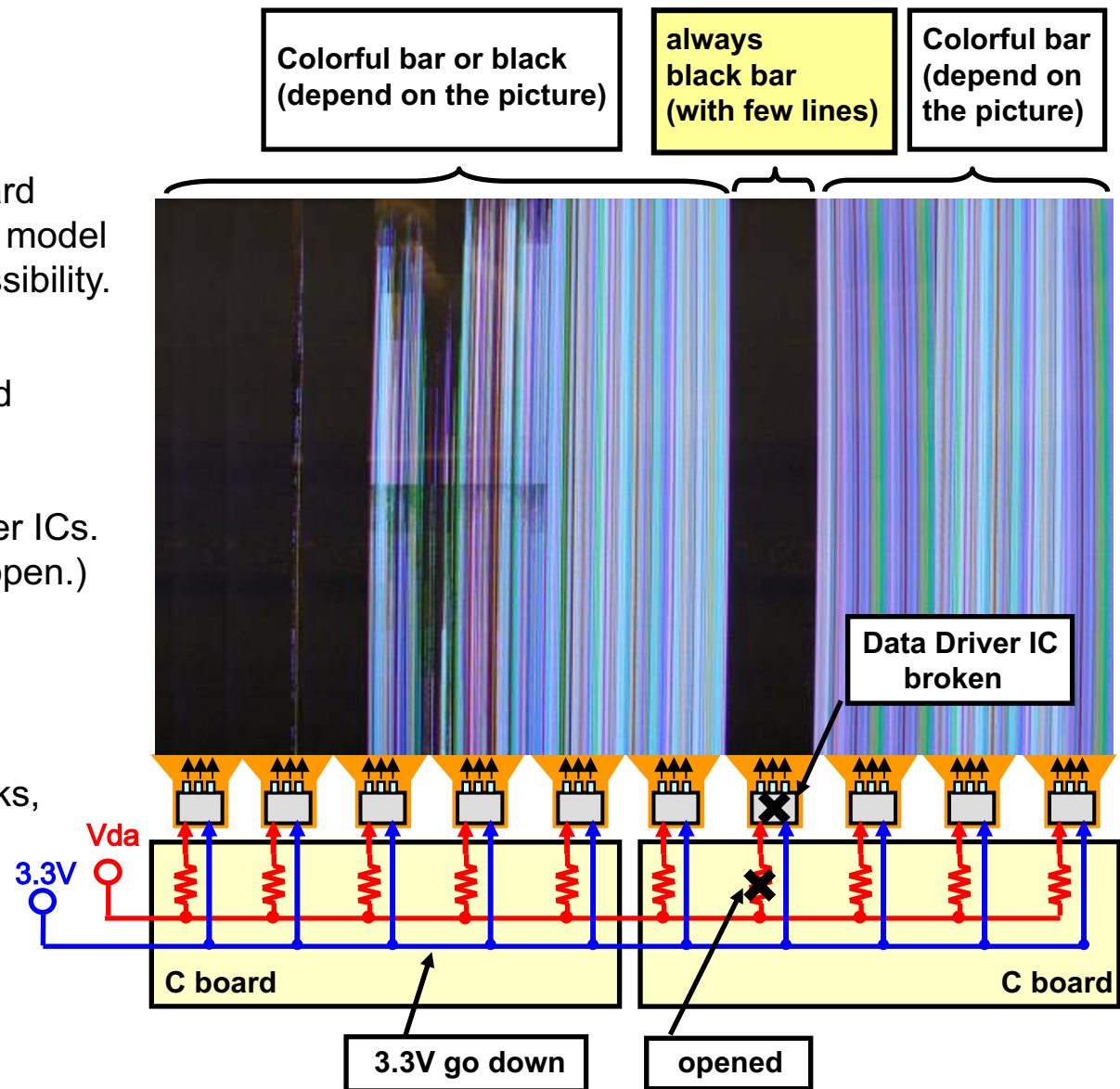
This symptom is very likely to be the A board defect for the previous model, but for 2011 model the Panel and C board defect is a high possibility.

[4] Summary :

If one of the Data Driver IC is defective and 3.3V go down, the other Data Driver ICs don't work correctly.
Because 3.3V is common for all Data Driver ICs.
(Vda line is isolated due to resister being open.)

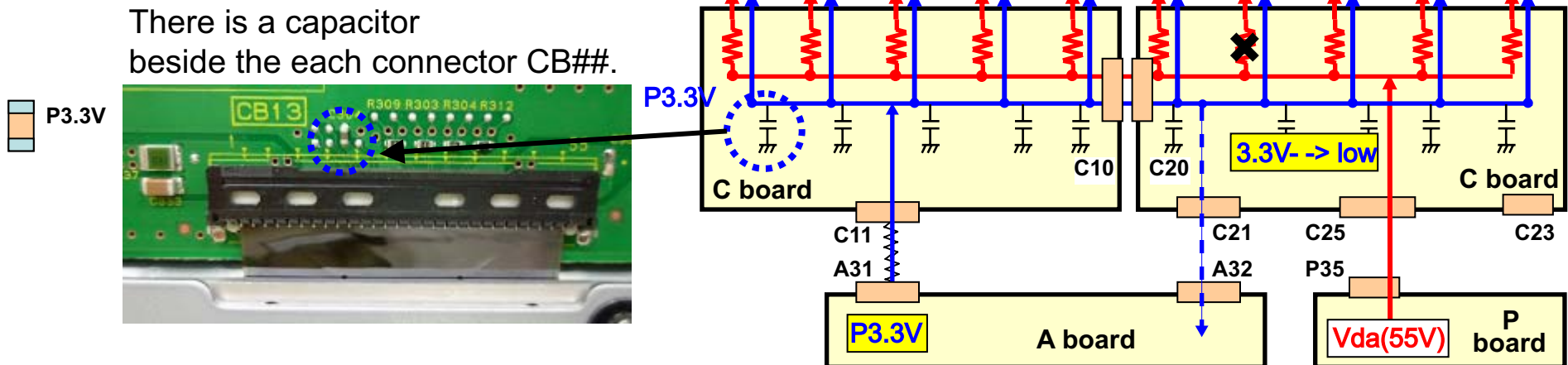
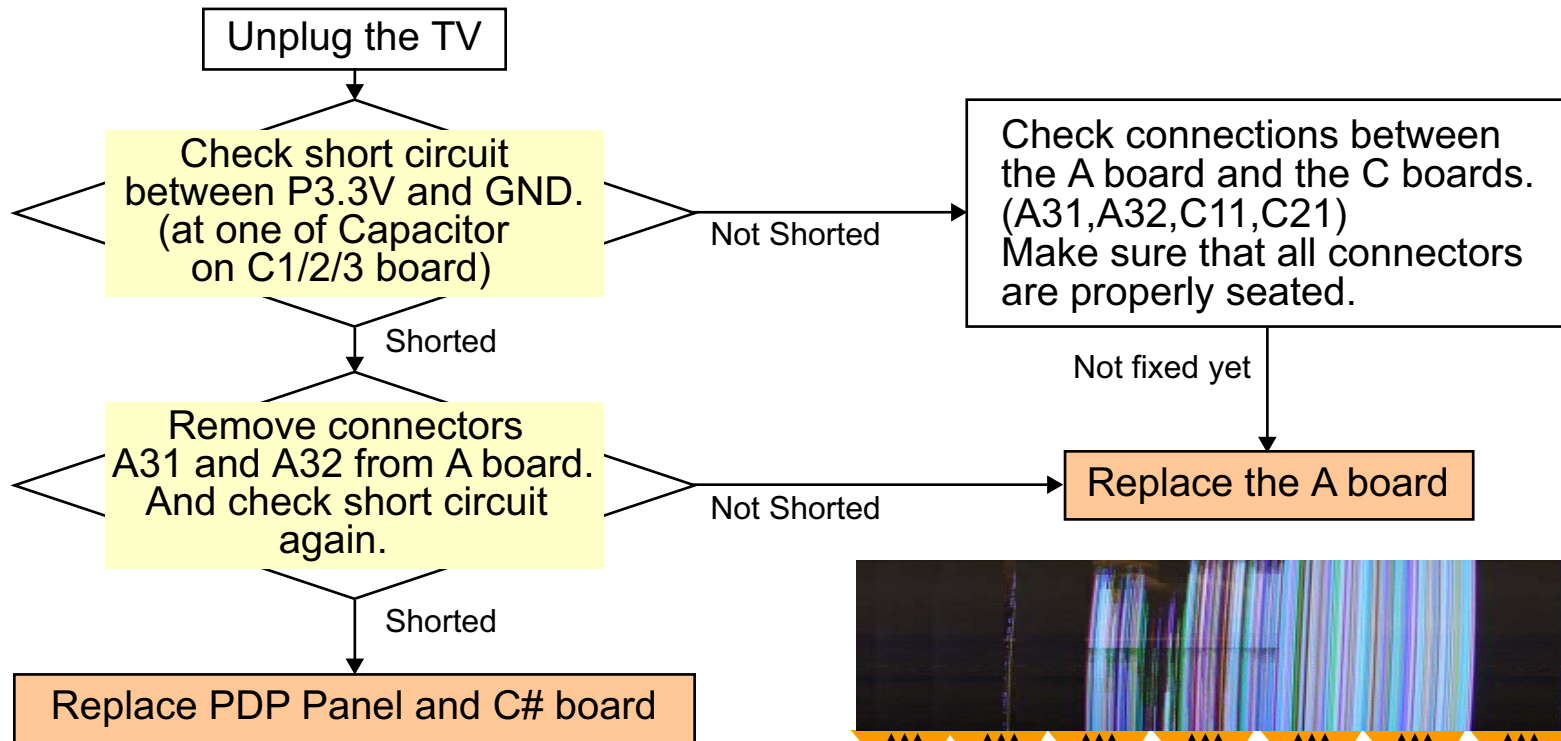
[5] Check point (Trouble shoot) :

Check by displaying some images.
If the position (length) of colorful bars change and there are some black bar blocks, the data driver IC is defective.
If there is no black bar block, check the connection of cables between A and C board.
If trouble still persists, the A board could be defective.



7.Case Example of Picture Trouble

[6] Detail Troubleshoot : Short check of the P3.3V line



7.Case Example of Picture Trouble

[7] Symptom example (another image)

Normal Image



Defective unit

